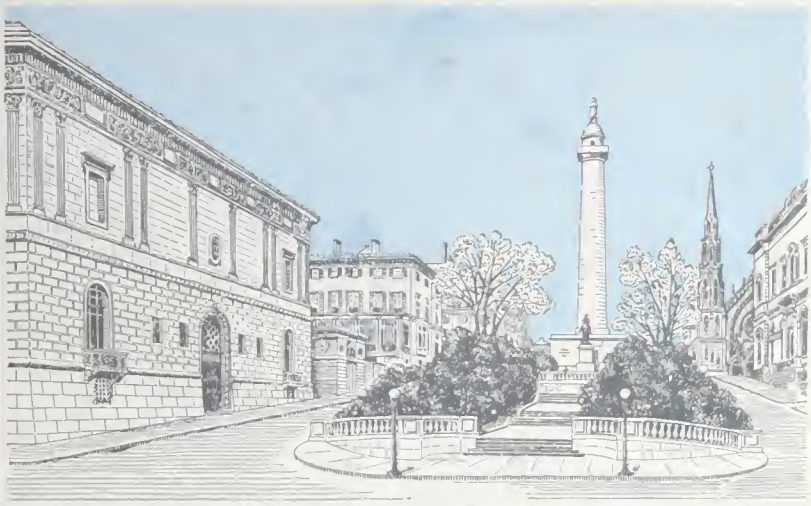

MARBLE ADAPTATIONS

by the

HILGARTNER MARBLE COMPANY

BALTIMORE, MARYLAND

LOS ANGELES, CALIFORNIA

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HILGARTNER MARBLE COMPANY
BALTIMORE, MARYLAND
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The Walters Art Gallery, one of the show-places of Baltimore. This fine marble interior is built of marble from the quarries of Washington County, Maryland. Delano and Aldrich, of New York, were the Architects.

NOTE

A number of specimens of the versatile work of this organization are shown on pages 29 to 43

A BRIEF HISTORY OF THE HILGARTNER MARBLE COMPANY

THE foundation stones of the Hilgartner Marble Company were laid by Ludwig Hilgartner, who was a native of Germany, but immigrated to this country in 1851 at the age of nineteen. After his advent, he worked at his trade of marble cutter for a number of years. In 1861 he formed a partnership for the carrying on of the monumental stone business. This partnership continued until 1873, at which time he determined to go in business for himself.

He built a modest plant at 714 West Baltimore Street, a location at the time very suitable for his business, as it was central enough to make his display room of real value. A few years later, his oldest son, Charles L. Hilgartner, followed in the footsteps of his father by beginning at the first rung of the ladder, becoming a marble-cutter in the mill. He rapidly went through all the departments of the business. The second son, Andrew, did likewise, and it was but natural that, in 1885, a partnership should be formed under the name of L. Hilgartner and Sons. This partnership continued until the death of the father, Ludwig Hilgartner, in 1902.

Our First Shop.

In the meantime, as the

LUDWIG HILGARTNER

business grew, the lack of a railroad siding proved a serious handicap, and the company was forced to seek another location convenient to such facilities. A site was secured in 1891, and a mill was established at the foot of Sharp Street and the Baltimore and Ohio Railroad. The monumental workshop, however, was maintained at the old location and was continued until 1916, when a more pretentious show-room was opened on one of Baltimore's main shopping thoroughfares, North Charles Street. At the same time, the monumental manufacturing department was transferred to the Sharp Street Mill, which had grown from a small mill to a large plant covering practically an entire city block.

Following Ludwig Hilgartner's death in 1901, the

partnership known as L. Hilgartner and Sons was dissolved and the business was incorporated under the name of the Hilgartner Marble Company. In 1914 Andrew Hilgartner died. Fortunately the business, being a corporation, continued to function without interruption. The two sons of Charles L. Hilgartner, Charles E., and Andrew H., entered the business in course of time. The former died in 1925, after a service of fifteen years with the company. The present officers include, of the original incorporators, Charles L. Hilgartner, the oldest son of the original founder; and his son, Andrew H. Hilgartner, Vice-President and Treasurer.

It is interesting to note the changes that came about in the marble industry during the past half-century. About 1880 the use of marble as tops for furniture sprang into vogue, and so heavy was the demand that the sales increased monthly. Many thousands of these tops were shipped to all parts of the United States. However, the demand suddenly ceased, almost overnight, as is the case with most fads. It seemed for a time that the business was due for a period of depression, when a new use for marble sprang up just as suddenly as the other had died. There had been developing a national interest in sanitation, and marble had become recognized as a material in building construction which met all the requirements of hygiene. This recognition crystallized into a demand for marble washstands and for many years the marble mills were never quite able to meet the public need.

When enamel and porcelain ware gradually found favor, the call for marble washstands lessened considerably. In the meantime, however, the use of marble for floors, walls, stairways, and as a decorative material for the interiors of buildings, had gained in popularity—

first, on account of its sanitary qualities; second, on account of the small maintenance charges; and finally, on account of its inherent beauty. This popularity has increased steadily and today our production consists mainly of interior building marble. Although we have continued our monumental department, upon which the business was founded, it forms only a very small proportion of our business.

A general view of our plant in South Baltimore.

WHAT IS MARBLE?

TECHNICALLY marble is a rock made up chiefly of crystalline particles of calcite or dolomite, or both. Commercially, marble includes a number of stones that do not come within the confines of this definition. Perhaps a better definition would be that advanced by Renwick in his book on *Marble and Marble Working:* "Marble is any natural stone that is of less hardness than granite, that is sufficiently close of texture to take and retain a polished face, and produced in sufficient quantity as to be available." This would admit such stones as Verde Antique, Onyx, Travertine, Sodalite, Chrome Schist and Alabaster. Of these, Verde Antique is by far the most important, at least in the United States. Its predominant and necessary constituent is serpentine, a hydrous silicate of magnesium.

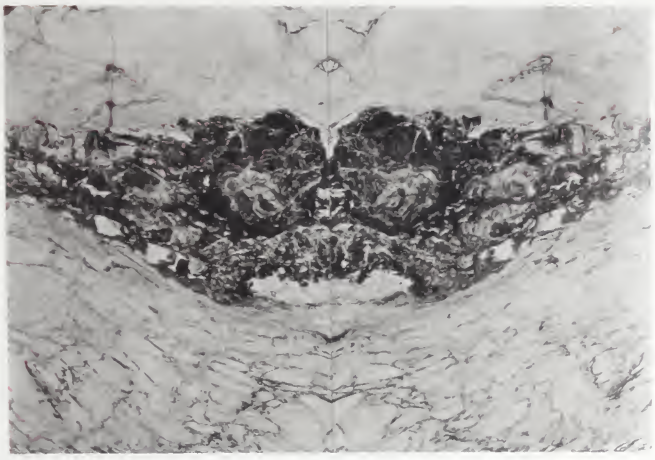
The majority of our commercial marbles are calcitic or dolomitic, and are believed to owe their origin to calcareous deposits upon the bottom of the sea, in relatively shallow water. These deposits were formed by the shells of the myriads of microscopic organisms that exist near the surface of the sea. When first laid down, these sedimentary deposits were originally horizontal; if existing conditions had not changed, they might have increased indefinitely, both in size and thickness. The crust of the earth, however, was very unstable and underwent great changes. The clear seas that teemed with countless lime-producing animals became muddy and deposited sand, gravel and clay. The earth constantly lost heat and contracted. The lateral pressure thereby set up, increasingly powerful, raised the horizontal beds slowly above the surface of the ocean. These forces were sufficient to consolidate the

calcareous deposits, to bend, crumple, fold and tilt and overturn them, and even break them into pieces and reconsolidate them.

While marble forms but a small percentage of the crust of the earth, its actual quantity is enormous; as it is widely distributed, there is no danger of the available supply ever being exhausted. It is only the great cost and risk of development that make marble more expensive than some other materials. After coming through all the convulsions of the earth's crust, after being folded, tilted and ruptured by these movements, acted on by weather, and eroded by glaciers, it is a matter of wonder that any deposits of marble are ever sound enough to yield blocks large enough for commercial use. Furthermore, the development of a quarry usually entails the removal of a mass of overlying material, as well as the discarding of unsound marble, so that even after a productive stage is reached, the operations rarely yield as much as 60 per cent of good marble, and often not more than 20 per cent. Below this yield, the quarry is not likely to be a financial success.

The marble producer has his greatest trouble with what the geologist calls "joints," which are cracks found invariably in all rocks. These joints, while not coming with any regularity, usually appear at right angles to each other and to the bedding planes of the marble. The cracks that bother the quarryman are not those, as a rule, that anyone can see. The inexperienced observer would rarely discover them in a block; he would even miss much of them in the sawn slabs. They do show, however, as soon as the marble is polished, so that if no unsoundness is visible in a polished piece of marble, there are none there.

The best way to test the soundness of marble when buying it either in the form of blocks or unfinished slabs,



Matched panels of Skyros (Greek) marble.

is to drench the material thoroughly with water. This brings out clearly both cracks and color. Fortunately, the marble producer usually develops all of the defects as well as all of the qualities of his stone before offering it for sale, and is usually the first to point out any defects to the customer. He knows that that is essential if he expects to hold his trade.

Colors are due to various constituents. Black and gray shades come from carbon; red, pink and reddish brown are due to the presence of either manganese oxides or hematite; yellowish and creamy tones are mostly caused by hydrous oxides of iron. Dale says the green color of certain Vermont marbles comes from the presence of fibrous potash mica, and the purplish tint of one of the dolomites of the Lake Champlain region from a mixture of hematite and magnetite. Siderite gives a buff color to some Vermont dolomites, and chrome-mica causes green bands in some Colorado marbles.

A LITTLE JOURNEY THROUGH OUR BALTIMORE PLANT

WHEN blocks of marble first come into our plant, they are placed in our general stock. The illustration on page 13 shows a part of our storage yard, filled with blocks of all sizes. A huge traveling crane picks these up and carries them to the sawing department. These marbles are brought from all parts of the world—from Italy, France and Belgium; from England, Germany and Norway; from Africa and South America; and from many parts of the United States and Canada. Some are for specific orders, ready to be filled; others are for general use, so that we may be prepared to fill orders without delay.

The marble blocks are of all shapes and dimensions, and the first step in preparing them for use is to cut them into sizes best adapted to the purpose for which they are intended. This cutting is accomplished by means of either circular, gang or wire saws. The last mentioned is used for ripping up thick stock and it consists of a long cable of three wires twisted together, forming one wire about one-quarter inch in diameter. This cable runs around a succession of grooved wheels, that can be raised or lowered as desired—or otherwise adjusted; the tension is controlled at one point on the line, by means of weights. Several blocks of marble may be sawed at the same time, the wire being set to run over and on top of the blocks. Sand and water are fed to the wire at the point where it first touches the block, The saw, running at a moderate speed, will cut through stone with surprising quickness. The illustration at the bottom of page 13 shows one of these machines at work in our open yard.

General view of yards showing part of stock of rough blocks always carried on hand.

Wire saw at work cutting marble.

The 8-foot gang saw shown above is one of twelve in our sawmill in Baltimore. It is because of just such thorough equipment that this company is enabled to accept important contracts wherein time, as well as skill, is an important element.

Where a number of parallel cuts are to be made through a block or through a number of pieces that together form a block, there is no cutting method in use that is more practical than the gang saw. Such a machine is shown above. It is made of a heavy steel frame in which are placed, at definite intervals, bands of steel drawn rigid, which act as the cutting blades. This frame is set with saw blades in contact with the top surface of the marble block and is then "shuffled" back and forth by mechanical power, while a stream of

water and sand is continually fed on the blades. It usually requires several days of constant operation—day and night—to cut completely through a block of average height. The machine pictured on page 14 is one of a battery of twelve gang saws. The largest are capable of sawing a block 18 feet long, 8 feet wide and 8 feet 6 inches high. The maximum size blocks rarely run over 300 cubic feet, well within the capacity of such saws.

Loading large blocks of marble into the gang saws.

The diamond saw is used for cutting marble into large rectangular pieces and for making irregular and oblique cuts; it is a necessary accessory of a properly equipped marble mill. One is shown in the picture on page 17 at the extreme rear of the building just beyond the horizontal fluted column. These saws consist of circular steel plates carrying on their edges a series of steel teeth in each of which is set from one to three diamonds. The cutting speed is much greated than with either gang or wire saws, as the diamonds eat their way through the material with remarkable speed.

After coming from the saws, the slabs are coped, rubbed and polished. The method of transportation is by means of trucks and platforms specially constructed for ease and rapidity of handling. One of these is shown at the bottom of page 17. The trucks have hydraulic lifts controlled by hand levers; the platforms are separate, sturdy and movable. By running the trucks underneath these platforms, the latter may be lifted along with their loads from off the floor and borne about the plant from point to point. In order to secure satisfactory operation of these trucks it is necessary to have smooth but tough floor surfaces. All our floors are of concrete, kept in thorough repair. Moreover, a clean shop is insisted upon at all times, to speed up this local transportation and increase the general efficiency of our plant.

White and Tennessee marbles are coped by pneumatic air tools to an approximate size only, with rather rough edges. The fancy marbles, more brittle and unsound, are coped to exact size on a carborundum machine, such as is shown on page 18. This machine is also known as a gang coper, because extra saws can be inserted at distances determined by the widths desired, and many strips cut at the same time. The cutting

General view of plant showing gang saws on left and various machines on the right.

Transporting slabs from one machine to another by means of a hydraulic truck.

A carborundum coping machine.

is done by discs of carborundum, revolving rapidly. The marble is placed in position on the table beneath the disc, and automatically fed against it. For cutting slabs into tiles, this machine is especially useful.

An even larger coper, really a combination machine, having a cross-cut head, which cuts the marble into desired lengths, is shown on page 19. It is especially adapted for cutting large slabs to exact size both in width and length, without moving the slab after once it is placed on the machine. In cutting lengthwise the table bed moves; in cutting crosswise only the cross-head moves. This method eliminates an extra handling

of slabs, resulting in a twofold economy. Not only is one of the costs of finishing reduced, but the hazard of breakage is lessened.

After coping, all materials must be faced on the rubbing beds, and given a sand finish. This applies whether they are intended for floor work or for standing marble. In the latter case, they are given a honed or polished finish afterwards.

The rubbing bed not only effects a sand finish, but brings the material to the exact thickness required. Illustration on page 20 gives an excellent idea of the process. It is one of eight such machines in our plant. The bed itself is a cast-iron disc varying in size from 10 up to 14 feet in diameter. This disc revolves in a horizontal position. The surface of the disc is kept smooth and true by grinding it down occasionally with iron weights. When the slabs are placed on this rubbing

A combination coping machine with cross-cut head.

One of our large rubbing beds.

bed, the abrasion is effected by the weight of the marble itself with the addition of sand and water fed automatically.

After the slabs come off the rubbing bed, they go to the honing and polishing department. The illustration on page 21 shows only a corner of this department. Here we have seventeen machines, half of them equipped with iron discs inset with carborundum blocks, and the other half equipped with felt buffers. The slabs go first to those having carborundum blocks, which are caused to revolve over the surface of the marble, while a stream of water runs onto the slab through the center of the shaft holding the disc. This operation results in a hone finish, which is a very smooth surface also known as a satin finish.

A confusion exists in some quarters as to what is a dull or satin finish and what is a polished finish. A dull polish is not really a polish at all, since no buffing has

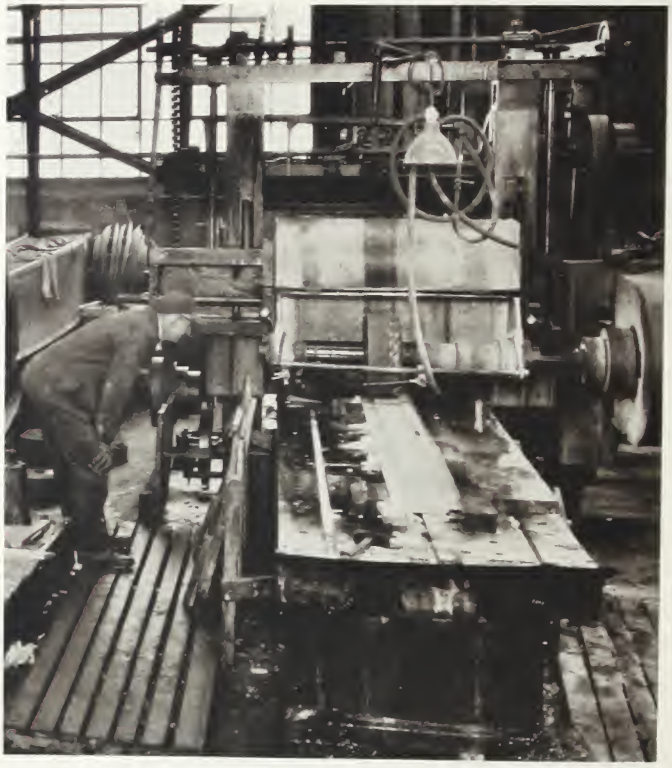
been done. For a real polish the slabs must go to the machines equipped with the felt buffers. Here a very small quantity of water is used, merely enough to dampen the chemicals that are used with the buffer. The heat caused by the friction of the felt buffer revolving against the slab, in conjunction with the action of the chemicals, causes the polish.

This method for honing and polishing is applied only to slabs of uninterrupted flat surfaces. For curved or irregular surfaces, the polishing is done by hand.

The polishing of fluted columns and moulded work is also done in this manner. Columns that are not fluted have a special treatment. They are first gritted by sand stone while revolving in a lathe, then honed and polished. These three operations are all done while the marble column revolves in a lathe.

When it is desired to shape marble into mouldings, etc., the carborundum moulding machine is employed.

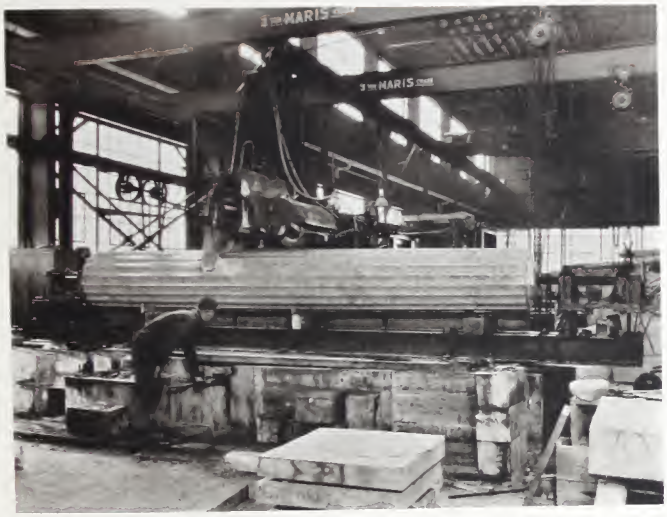
Buffing and polishing machines. A honing machine is shown in the right foreground.



Moulding a trim with a carborundum moulding machine.

This shaping and finishing is accomplished by a wheel of carborundum, shaped the reverse of the detail desired, revolving rapidly against the marble, which is fastened to the table and is moved against the wheel. The illustration above shows a moulding machine shaping a slab to the proper design.

After this operation, these mouldings go to the fitting department where the pieces are laid together in continuous stretches in the order in which they will event-



A monolithic column 17 feet 6 inches long being fluted on one of our machines.

View of carving department. The bell-shaped urn of Belgian Black marble is one of a pair in the War Memorial Building, Baltimore.

ually be installed in the building. They are then rubbed at the joints, in order to secure a perfect alignment of the various members of the mouldings. After precision of fit is assured, the pieces are then honed and polished in the usual way.

On page 23 is shown one of our machines for fluting monolithic columns. This particular column was 17 feet 6 inches in length and the operation was rendered doubly difficult because the column had an entasis. The carborundum cutting wheel has the reverse shape of the flutes, and the operation is similar to that described above for fabricating mouldings.

The entire plant is electrically equipped throughout. We have, in fact, our own substation for reducing the central power company's current from high to low voltage. Each machine is driven by a separate motor, insuring freedom from any serious tie-up on account of belt breakage or motor trouble. All the pneumatic air tools are driven by air, compressed in our own plant.

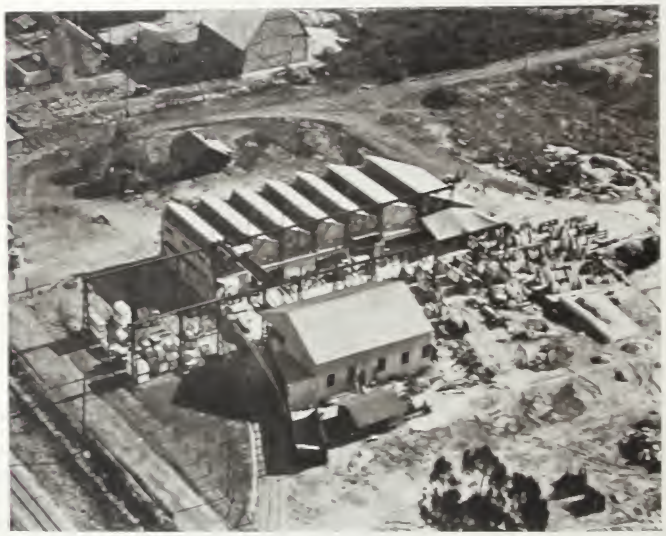
However, there is one factor that enters largely into the successful handling of a marble contract, and it is a factor that is too often overlooked. We refer to the personnel of the plant—the employees who operate the various machines and whose ability is responsible for the accuracy of the work turned out. These men are not mere workers. They are artisans, mostly with years of experience and family traditions back of them. Their fathers before them were marble craftsmen. Some of our men have been with us as long as fifty years. They take a proper pride in their skill and despise shoddy work. The fact that such a large proportion of our force is made up of such men is assurance of our ability to give more than satisfactory service.

Detailed plans are worked up and designs originated in this section of our drafting room.

Part of our clerical force at work in our main office.

OUR LOS ANGELES PLANT

IN 1922 it was decided to establish a western plant. Los Angeles, California, was chosen as the most desirable location, because of the building activities throughout that section of the country, and its rapid growth.



An airplane view of our Los Angeles plant.

An independent company was formed, with Mr. Charles L. Hilgartner as President, Mr. Charles E. Hilgartner as Vice-President and Mr. Louis Hilgartner Dapprich as Second Vice-President and General Manager.

Mr. Dapprich had learned the marble business with the Baltimore company, and had afterwards been their Chicago representative for a period of years.

A tract of land of eleven acres on the outskirts of Los Angeles was acquired, with exceptional railroad facilities, and upon this site a most complete marble plant was constructed. Modern machinery was installed and the latest methods of marble fabrication were adopted. The illustrations on this and the preceding page give an adequate idea of the completness of this mill.

Since its organization, the Hilgartner Marble Company of Los Angeles has successfully completed a number of very important contracts, some of which are shown in the latter pages of this book. These are evidence of this plant's ability to execute any marble work that may develop in the building field.

The close connection between the Baltimore and Los Angeles mills gives an advantage to each plant in service that effectively covers any part of the United States.

The yard of our Los Angeles plant.

One end of our Los Angeles finishing shop.

ON THE FOLLOWING PAGES ARE
SHOWN A NUMBER OF

MARBLE ADAPTATIONS

INSTALLED BY THIS COMPANY

THESE INCLUDE BOTH EXTERIOR AND INTERIOR TREATMENTS, MANTELS AND GARDEN FURNITURE. IN A MAJORITY OF INSTANCES THE DESIGNS FOR THE SPECIAL DECORATIONS, MANTELS, GARDEN FURNITURE, ETC., WERE ORIGINATED BY OUR ARTISTS

Main entrance lobby of Standard Oil Company's Building, Baltimore. A magnificent marble treatment—a combination of both beauty and stability. In this construction permanence and dependability have not been subordinated to decorativeness. The floors are of Tennessee marble with Black and Gold for the base. Tavernelle Fleuri marble was used for the wainscoting from floor to ceiling. The columns are also Tavernelle. Clyde N. Friz, Architect, Baltimore, Maryland.

Entrance lobby of the Life Insurance Company of Virginia Building at Richmond. The floors and columns are of white Italian, the panels of Italian Statuary, with borders of English Vein marble. Clinton and Russell, Architects

A side corridor in the Walters Art Gallery, Baltimore; one of the most important private art museums in the country. Delano and Aldrich, Architects

A corner of the main banking room of the National Bank of Baltimore. Botticino and Tennessee marbles were used to express the architects' ideas. C. B. French, New York, and T. W. Pietsch, Baltimore, Architects

Banking room of Citizens National Bank, Baltimore. The columns and counters are Rose Tavernelle marble; the floor is Tennessee marble. Graham, Anderson, Probst & White, Chicago, Architects.

Lobby of the Pershing Square Building, Los Angeles, California. The floor is of Travertine tile; the walls are of Golden Vein St. Genevieve marble. Curlet and Beebman, Architects.

The lobby of the Tivoli Theater, Washington, D.C. Siena marble was used for the wainscoting and columns; York Fossil for the base. Thomas Lamb, New York, Architect.

Interior of the War Memorial, Baltimore. Travertine, Tavernelle Fleuri, Belgian Black and Red Ark Fossil marbles were used in this striking treatment. Laurence Hall Fowler, Baltimore, Architect.

Jewelry store of Wm. Feagans and Co., Los Angeles, California. The first floor up to the balcony supports is of Black and Gold marble—a very effective treatment. L. and E. Manuel, San Francisco, Architect.

Stairway of Tavernelle marble in the Maryland Historical Society Building, Baltimore. Wyatt and Nolting, Baltimore, Architects.

In this grand stairway of the Maryland Institute, Baltimore, marbles from Tennessee, Alabama, Africa and Greece were used. The monolithic columns are of Numidian marble. Pell and Corbett, of New York, Architects.

Rose Tavernelle and Tennessee marble stairway from Safe Deposit Department to main banking floor, Citizens National Bank, Baltimore. Graham, Anderson, Probst & White, Chicago, Architects.

Stair Hall in the U.S. Chamber of Commerce Building, Washington, D.C. The floor is Travertine, the walls of Pouillenay Rose. The twist in the string of the stairway is one solid piece of marble. Cass Gilbert, New York, Architect.

An unusual door in the Law Building, Norfolk, Virginia. Tinos marble was used for this fine entranceway. Peebles and Ferguson, of Norfolk, Virginia, were the Architects.

This doorway of the National Bank of Baltimore was built of Pink Tennessee marble with Black and Gold trims and panel. The architects were C. B. French, of Morgan, French & Co., Inc., of New York, and Theodore Wells Pietsch, of Baltimore.

Palm Court in the lobby of the Mayflower Hotel, Washington, D.C. The marble fountain is the chief feature of this room. Warren and Wetmore, New York, Architects; Robert F. Beresford, Associate Architect

Fountain in the garden of Mr. August Kiel at Milford, Pennsylvania. Italian marble was used for the statue, and Alabama marble for the pedestal and basin

This striking Gothic mantel of Hauteville marble was made for the residence of D. S. Blossom, Cleveland, Ohio. It was designed by Abram Garfield, Architect, of Cleveland, and fabricated in this plant.

A simple but beautiful mantel in the home of Mrs. S. T. Bland, West Point, Virginia, built in accordance with our own design The marble is Second Statuary.

A magnificent mantel in the home of Mr. E. H. Everett, Washington, D.C. Oakley Totten, Jr., of Washington, was the architect. Silver Gray Siena was used throughout.

Another mantel in Mr Everett's Washington residence, designed by Oakley Totten, Jr., Second Statuary was the material employed.

A mantel in the home of Mr. H. B. Gilpin, Scaleby, Clark County, Virginia; designed by Howard Sill, Architect, Baltimore. Blanco P, a white marble from Italy, and Siena facing were used, with Wedgewood inlays.

A living-room mantel in the home of Mr. H. M. McAden, Charlotte, North Carolina, from plans of our own design. The material is Second Statuary marble, with an antique finish.

A monument in Loudon Park Cemetery, Baltimore, of Westerly granite, executed from our own design.

The Frick Monument in Greenmount Cemetery, Baltimore. Alabama marble was used for this dignified creation. John Russel Pope, New York, Architect.

CARE AND CLEANING OF MARBLE

MARBLE retains its original beauty longer than any building material known, but for this very reason it is frequently allowed to stand without cleaning amid the dirt of the modern city. Naturally the surface, in course of time, is bound to accumulate a coating of foreign matter that detracts considerably from its appearance. But, where other materials would be permanently marred by such neglect, marble may be readily restored to its pristine freshness. It is, however, much the wiser plan to give the marble the same frequent attention that one would give to the paint or woodwork. It is more economical in the end and certainly the charm of the stone deserves it.

It also frequently happens that those who attempt to keep marble clean are ignorant of the proper treatment. The following suggestions should therefore prove invaluable to those who have charge of structures containing marble.

POLISHED MARBLE

Polished marble should be cleaned weekly, or at least once a month. Grease, dirt and dust will collect on the surface and if not removed will result in a cloudy film and cause discoloration. Clean water and clean rags are all that is necessary as a rule. Occasionally a little mild alkali should be added to the water to remove the greasy film just spoken of. It is well to wash the marble with sponges and dry with a soft cloth. A little Javelle water added to the water used in cleansing is useful, not only for its cleansing properties but for its qualities as a disinfectant.

Polished marble should be wiped dry after washing and then rubbed vigorously with a soft woolen cloth, cheese cloth, white cotton waste or chamois skin. This prevents streaks which might be left from dirt in the wash water.

Never use an acid on marble. Neither should soaps, soft soaps, soap powder, scouring bricks nor harsh abrasives be employed, as they are often of a caustic nature and they may contain impurities which will bring about discoloration. Usually, they are not readily rinsible and, therefore, leave a film which will act as a binder for dust and dirt. Harsh abrasives destroy the polish. (Not only should you guard the front of the slab from things that will cause injury, but you should also be sure that there are no foreign substances on the back, the stains from which may work their way to the surface.) Do not use soap, nor any cleaning powder containing soap.

The persistent use of soap will finally leave a film upon the surface of any wall or floor finish; this film forms in spite of thorough rinsing. It will make floors slippery and will finally cause a superficial oily appearance in delicately colored marbles, which detracts greatly from their appearance.

FLOORS

For cleaning marble floors, water with a little alkali, together with some scouring agent like diatomaceous earth, is a good combination. There are proprietary preparations which unite the necessary ingredients; some of them, however, contain soap and should be avoided or at least adopted only after it has been demonstrated that they have been freed of the objectionable qualities of soap.

In sweeping marble floors, white pine sawdust is very

satisfactory. Avoid sawdusts made from oak or other woods, also prepared sweeping compounds and oiled mops. They are likely to produce stains.

As marble (except Verde Antique) is essentially calcium carbonate (or sometimes calcium magnesium carbonate), acids should not be used in cleaning it.

If oil, ink or other substance likely to discolor marble is dropped or splashed on it, prompt action will greatly diminish the trouble of removing it. Even the thinnest of fluids will penetrate marble but slowly, and prompt application of absorbent rags or paper is often all that is needed.

OTHER SUGGESTIONS

If several hours or days have elapsed, other measures are required. Any organic coloring matter can be bleached out by persistent application of rags or blotting paper moistened with Javelle water; any alkaline or non-acid bleaching agent may be applied to marble without injury; the same is true of any solvent except acids and soap solutions.

The only known stain that will penetrate marble and that cannot be removed is iron rust. Rust will not penetrate unless the marble is in contact with rusting iron for a long time; under such circumstances there is an affinity which produces what seems almost a solid solution. No interior marble will ever be stained with iron rust if, in setting, it is kept free from contact with pipes or other iron or steel parts of the structure.

If grease or oil is promptly removed, no penetration will occur. If left for some time, grease stains may remain. They can be removed in a number of ways. Clean white blotting paper applied to the stain and heated with a hot iron; clean rags or waste or a pat of plaster of Paris kept saturated with gasoline and in contact with the grease stain (airplane gasoline is the

most effective); a little quicklime slacked in contact with the stain; dry Portland cement kept in contact with the spot for several hours or a day or more; exposure to direct sunlight where possible; all these methods are effective. Sometimes, one is more effective, sometimes another.

With ordinary care and attention nothing should ever happen to require the use of any of these methods. Prompt action in case of accidental application of grease, ink or similar substances, will prevent staining. As for iron rust, one would have to inspect hundreds of buildings and hundreds of thousands of square feet of marble for every instance found. Marble may become dingy and apparently stained from sheer neglect, especially in basements and toilet rooms; but even in such case, it may always be restored to its pristine freshness by the application of Javelle water or by use of one of the methods mentioned above, either with or without Javelle water.

The only thing really needed is a moderate amount of care and attention from the beginning. The marble will then continue clean and fresh and no elaborate methods will be required.

Pride Mark
THOMSEN-ELLIS CO.
BALTIMORE & NEW YORK